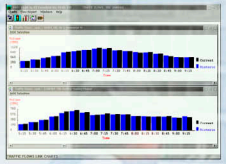
VDOT uses current and historical traffic information collected by its computerized central signal system and supplemented by manual traffic counts. The information is entered into advanced computer programs that optimize signal timing. The computer output is then transferred to traffic simulation models to determine the impacts on traffic flow. The simulation results are also used to fine-tune the computer generated signal timing plans.

VDOT's central signal system communicates changes in signal timings to "controllers" that manage signal function at individual intersections. In addition, field operations staff observe field traffic flow whenever new signal timings are implemented. Final adjustments may be made based on these field observations.



Signal Timing Database

As a part of the signal retiming effort, VDOT creates a database of traffic operating characteristics on the roadway network. The database is used to support continued retiming operations, to provide information for planning of roadway improvements and new development, and to develop real time signal timing plans for incident special event and response.

Signal Operations Maintenance:

VDOT takes a proactive approach to traffic signal maintenance. Each intersection is serviced on a regular basis as a part of a preventative maintenance program. Internal components, field operations, and physical hardware conditions are reviewed and problems are corrected. This has significantly reduced the number of unexpected problems associated with field traffic signal equipment.

Questions or Comments?

VDOT is interested in receiving suggestions and comments from the motoring public. If you should have a question or comment, please contact Mark Hagan at 1-800-VDOT or by email at NOVA.stss@virginiaDOT.org

Northern Virginia Signal Operations:

Enhancing Mobility Through Technology

VDOT's Northern Virginia Signal Operation:

Enhancing Mobility through Technology

Increasing traffic in Northern Virginia can mean congestion and delays. These problems result in lost productivity for businesses and less time for personal activities.

To address this important concern, the Northern Virginia District of the Virginia Department of Transportation (VDOT), in concert with local jurisdictions, is using advanced technology to more effectively manage traffic signals throughout the region.

On behalf of the traveling public, VDOT has made a prudent investment to enhance mobility through effective application of this technology.

VDOT's Northern Virginia District covers a geographical area that includes Fairfax, Loudoun and Prince William Counties and

* Contains approximately 1.5 million residents
* Covers more than 1,250 square miles
* Manages over 1,000 signalized intersections
* Uses more than 10,000 vehicles detection devices

The traffic signals in Northern Virginia are operated by several jurisdictions. VDOT operates the signals that are generally on State roadways. The cites and counties maintain and operate the signals on their roads. Each jurisdiction has its own methods and practices. VDOT coordinates operations with these jurisdictions to the greatest extent possible.

Example

In the Fall of 2001, Virginia Department of Transportation's (VDOT) SMART Traffic Signal System (STSS) staff optimized signalized intersections on Route 50 from the intersections of Stonehurst Drive to Annandale Road. By optimizing these signals, stops and delays were decreased which resulted in an average of a 28% reduction in travel time during the AM period and an average of a 5% reduction during the PM period on the arterial.

Signal Control System

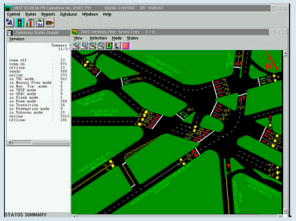
The 1,000 plus intersections that VDOT maintains are connected to a central computer system. This system continuously monitors the operational status of the signals, collects traffic flow information, and supports signal-timing operations and changes.

VDOT staffs the central system with experienced professionals who manage traffic operations by continually adjusting the signals in response to changing traffic patterns.

The central system allows for full remote access. Operators support signal operations through telephone connections during major incidents and emergency response calls. The system automatically pages maintenance staff when specific types of problems are detected. These features have decreased VDOT's response times when problems occur, and have reduced overall traffic delays associated with typical signal malfunctions or significant changes in traffic flow.

Signal Retiming Program

Signal timing plans control the number of vehicles that can travel through specific roadway networks. Plans are customized for time of day and associated congestion levels.



VDOT is aggressively and continuously reevaluating its signal timing operations.

VDOT leads the country with its sophisticated approach to signal timing. The resulting benefits are impressive.